THE CHEMIST

JUNE 1948 VOLUME XXV, No. 6

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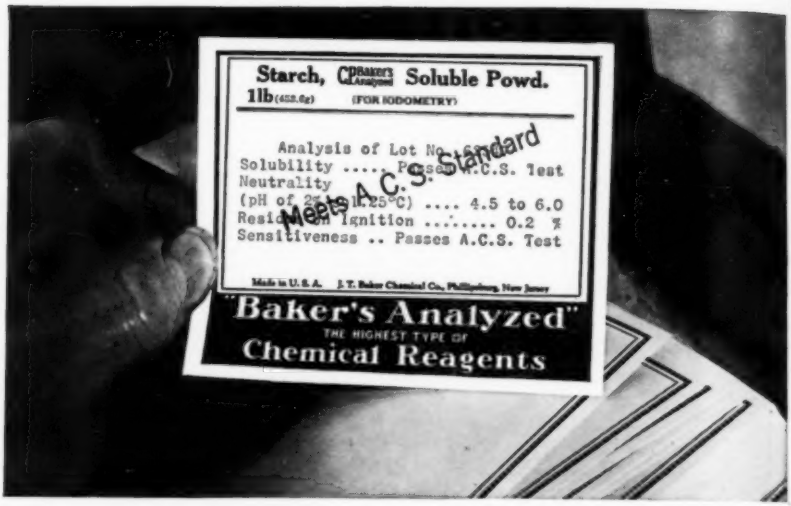
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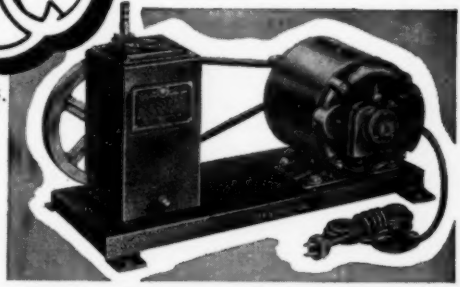

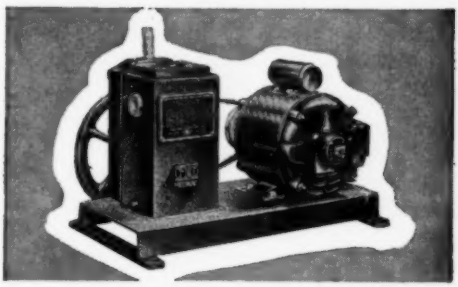

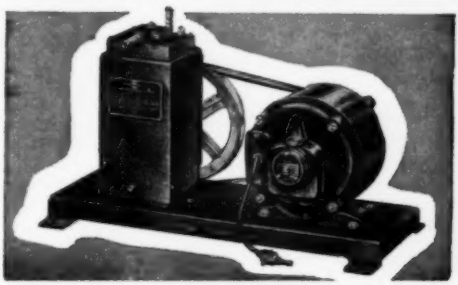

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The Scientist as an Administrator

Dr. Charles Allen Thomas, F.A.I.C.

Executive Vice-President and Technical Director, Monsanto Chemical Company, St. Louis, Missouri

(Medal Acceptance Address, May 7, 1948)

TWENTY years ago, if you used the word, "conditioning," most people would have asked you what you meant by the term. But since 1927 when Pavlov's study of reflexes appeared, most of us have come to have a fair understanding of what we mean by conditioning. And we recognize its applications in a far more complex sense than the simple sensory associations that Pavlov demonstrated. The last war called our attention to the need for conditioning men, not only physically, but also mentally, for combat duty. In the field of science we recognize the similarity between what we call experience and what upon closer inspection appears to be conditioning.

Men in pure and applied research frequently shift their topic of investigation to entirely different fields. They are frequently successful in quite a number of projects often scarcely related. We can hardly give credit to experience, *per se*, because their previous work was in another field. It would be more exact to say that the conditioning they had received in earlier fields was a definite, contributing factor to their success. In research, such conditioning might be summarized, as follows: It is probably the cumulative effect of meticulous attention to detail, careful rechecking of results, and a respect for the factor that won't fit into the theory, plus imagination. Most certainly a research man becomes conditioned to maintain a firm conviction that the sought-after answer is there —waiting for him to find it.

I shall speak about a reconditioning of scientists, or perhaps it would be better to call it a re-orientation or a mental re-adjustment. This re-adjustment is a problem that will be met by more and more of our present day technical men, because they are going to be caught up in a definite trend that has started to define itself in the last few years.

The Trend to Scientists as Executives

More and more, the scientist is taking his place in the industrial leadership of America. In some of our leading industries, we find that men with technical training who have spent the greater portion of their lives in

scientific pursuits are now taking over positions in the management. This is particularly true in the chemical industries and oil industries. Many of our leading oil companies have several men with Ph. D. degrees serving on their board of directors. The same thing is true in the electrical, the mechanical, and the biological industries. In the biochemical field we find men with medical degrees serving as executives. Biologists are serving their companies as managers and directors. In almost all cases, these scientific men who now find themselves in a managerial capacity have come up out of the laboratories and engineering departments. They heve reached executive status through the scientific side of their business.

It is interesting to note that this same trend occurred in Germany before World War II. In fact, we find that many of the major companies there were largely governed and controlled by men from the scientific fields.

We can summarize in general by saying that scientists are today taking a new role in the industrial leadership of America.

In a sense, it is possible to discern a reason why such a trend is taking place. Modern industry seems to be stepping ahead with seven-league boots. The merchandise, the service, and the administration of modern business is so scientific and complex that technical training is needed in almost all departments. It is not without reason nor without a definite need that technical men are being called on for work in administrative capacities.

The New Responsibilities

It is not my purpose to forecast any of the possible effects of this new type of management, nor to speculate upon the possibile benefits or hazards that might stem out of it. The time is too short to evaluate properly the possible effects of a scientific background upon business administration or what will be the result of this trend. What I do propose to discuss is the effect of these new responsibilities upon the scientist or engineer who finds himself in this new role.

I recently had occasion to drop in on a man I had known in college who had spent most of his life as a research chemist for a large oil company. He had recently been appointed to a seat on the company's board of directors. After we had talked a minute or two, I asked him how he liked his new job. He looked over his desk which was piled high with reports and correspondence and he said:

"There's so much happening all at the same time that about all I can do is grab at a few things as they go by."

This conscious intimacy with confusion that was implied in his statement points up some of the new vistas that had rather suddenly opened up around him when he left the lab-

oratory and entered the maelstrom of administration.

In many instances, the transition is more gradual. Certainly a man who has been a group leader or perhaps the head of his department gets some taste of the job of management and administration. But nevertheless, as the man said as he crossed the stepping stones of the creek—the last step is always the hardest. There is, always, to my estimation, something akin to an uprooting and an attendant shock when a man transfers his activities from dealing with the facts of science to dealing with the complex and diverse issues of sales, labor, finance, production, and human relations.

Facts Become Intangibles

Perhaps the most disheartening aspect of his new job to the scientist is the shock of having to exchange his stock in trade of scientific facts for a mass of intangibles. Over a period of years, the technical man makes a habit of dealing with demonstrable facts. For much of his communication, he depends on some kind of numbers or symbols. His vocabulary places an undue reliance upon uncontradictable terms, terms that mean the same thing to scientists the world over. As an executive, he must rely entirely upon words to express his ideas. He soon learns that words are capable of a variety of interpretations, that while they may actually mean one thing they suggest another. Whatever his native adroitness at expression may have been, he will invariable find that it has suffered through years of expressing himself through the language of mathematics. He also finds that while a mathematical formula often answers a question finally and for all time, words have to be repeated and they have a devilish way of expressing degrees of conviction.

The difficulty of unmistakably clear communication on questions that he must answer leads him directly into what is probably his biggest problem as an executive—the perplexing differences that arise out of dealing with people instead of things. In the laboratory, the technical man is accustomed to relying upon unchanging scientific laws. Facts once established are facts. They are reproducible, static, and dependable. In an executive capacity, the technical man finds he is dealing primarily with people who are constantly changing their viewpoint, who are always striving, and who can not always be depended upon to act or react twice in exactly the same way. He has been accustomed to handling things that can be measured. Now he must deal with things that are unmeasurable.

In human relations, the technical man deals with conditions that are inexact. In science, he has been accustomed to classifying facts as black or white. Now he finds that such definiteness is impossible. He is operating in a grey area. In an executive role,

few facts are definite or immutable. Living in the gray area is probably the biggest adjustment that has to be made.

Another source of confusion is that under the new conditions lack of time makes it rare for an executive to be able to inform himself completely about a subject or to be able to go into great detail on any of the many phases of the business to which he must give direction by his decisions. No longer does he have the opportunity to know all the phases of any problem. In the laboratory, the scientist proceeds with his investigations with a firm confidence in his information. It is information which he himself has accumulated and evaluated. In an executive capacity, his decisions must be based on incomplete knowledge or facts collected by other people. Unless he can accustom himself to accepting and using the best information at hand, he will be inclined to protract his judgment and suffer from a feeling of inadequacy—a sort of a chronic mental state of feeling far out on a weak limb.

Let us suppose that a scientist has four possible compounds that will serve as a catalyst in a chemical reaction. He tries each one experimentally. Catalyst Number 4 gives him by far the greatest yield. He has ample experimental evidence to aid him when he decides that Catalyst Number 4 is the best compound to use. As an executive, on the other hand, he has four potential markets for a new product. Surveys indicate that three are potentially capable of absorbing the same volume. Number four market can conceivably take twice as much as the other three, but to exploit this market will eliminate the possibilities of ever selling markets one, two, or three. In addition, Market Four may possibly fold up completely. What will be his course of action? This rather primitive example is actually quite a common problem and it serves very well to illustrate the point. In science, the course of judgment is almost always directed by complete facts. In administration, judgment proceeds with less reliable information, and moreover, with facts which have every possibility of changing.

From Unity to Diversity

Another confusing aspect of his new role to the scientist is the discovery that he has catapulted from unity to diversity. In his capacity as a scientist or an engineer, all his problems were generically the same. As an executive he is faced with a degree of difference that is astonishing and confusing. On the one hand his decisions, perhaps on a sales problem, must be governed by detailed statistics or carefully compiled accounts; on the other he must decide with no facts whatever some intangible course of action in public relations. His problems range from deciding a course of action according to a dollar-

and-cents comparison of figures on a balance sheet to the unpredictable results that might follow his analysis of the character of a man sitting across the desk.

The judgment of people will continue to be foremost as one of the most important and perplexing problems of the executive. This has been said many times and most of us accept it without question. But I suggest that it is even more perplexing to a technical man who has been accustomed to relying, not upon human beings for his information, but upon instruments which he understood thoroughly, and instruments, moreover, whose accuracy he could check closely and frequently.

As a scientist, he could secure facts from a precision instrument; as an executive, he must interpose a human being, or rather dozens of human beings, between himself and the source of his knowledge. And he must be able to evaluate the information that is filtered through his supporting staff in terms of the people who screen the facts. In the laboratory, the scientist has to observe only the laws that govern physical phenomena; in an executive capacity those are largely replaced by the individual wills, the prejudices, and the appetites that govern human relationships.

Up to this point, we have been considering the factors that bear inward on the judgment and acts of a man conditioned as a scientist who finds himself in an executive capacity. In effect, we have occupied ourselves with the centripetal forces. Let us now consider the centrifugal force of the man's personal ego and how it must affect those with whom the executive has to deal.

Personality Important

As a scientist, a man is not usually judged on a personal basis. His work, not his personality, is the basis of evaluation. We have had famous scientists who have had execrable manners. I know of at least one engineer who made a habit of cussing out not only his subordinates but his superiors. In the technical field it is a man's work, far more than the man himself, that is important.

As an executive, this condition is not tolerated today. A scientist's reputation is built upon work that he has completed. He commands respect on an established record. An executive's ability undergoes repeated evaluation. His reputation may be made or broken at any time by the cooperation he can secure from his human instruments while a piece of work is in progress. An executive has to command respect and it must largely be called forth by his personality. He must impress both his superiors and his subordinates with his fairness, his open-mindedness, his lack of prejudice. He mut fill the role of a balanced, a well-rounded, vigorous personality that will inspire loyalty and willing cooperation. An administrator

must possess above all the ability to get along with people. As a scientist, he has been accustomed to taking complete credit for work well done. As an executive, he must develop the habit of taking no credit at all. He must appear not to be part of the reacting components of a working combination, but merely the catalyst whose presence causes the proper things to happen.

I mentioned that as an administrator, the technical man must be a well-rounded individual. This is a bigger order than appears at first blush. A modern executive must have a working knowledge of salesmanship, accounting, production, and finance. He should be thoroughly grounded in psychology and have more than a smattering of the knowledge of public and industrial relations, He needs at least a nodding acquaintance with statistics, law, history and government. And in these days, it helps restore the mental equanimity if the harassed business executive has some knowledge of the history of political philosophy.

Self-Education Necessary

A course of self-education is necessary. In learning his technical field thoroughly, the average scientific man has been compelled to confine his study to his own particular interests and to those which stood in close relation. As an executive, he suddenly finds that knowledge which runs the gamut of the humanities has assumed a tremendous importance. He becomes acutely conscious that his decisions affect the livelihood of thousands of people, not only in the employ of his company, but in his community and even those in the employment of the companies with which he does business. He must be as familiar as possible with the way people think, the way they act, and with the motives that influence their lives. Such knowledge can never be found in a book of formulae or handbook of tables. To know the forces that move people to think and act, an executive must study humanity itself and the distillations of humanity that can only be found in history, literature, and philosophy. In his former capacity as a technical man, these subjects were only of academic interest. As an administrator, they suddenly become vital.

Knowledge of Finance Required

I mentioned that the executive must have some knowledge of finance. The neophyte soon finds out that there is a lot to be learned from a balance sheet. Before he seriously studied finance, he may have thought that since the assets always balanced the liabilities, the balance sheets could tell him very little about how successful was the business' operation. But balance sheets are important and an executive soon realizes that no company can continue to develop successfully without some well-thought out plan of finance. He becomes aware

that capital can be had on varying terms, some sound, some not too attractive, and some not worth the price. And just the realization that finance is an integral part of industrial operation is an important expansion in his mental readjustment.

Labor-Management Problems

The executive has to be conscious of labor problems and keep informed on the changes in employer-employee relationships. He must appreciate the current trend toward liberalization, the shifting balance of power between management and labor. Knowing the appetite for power in the human anmal, today's administrators must gauge their actions, measure their concessions—or our economic picture may wind up with an unbalance quite as dangerous to our economy as the earlier exploitation which organized labor rightfully set out to correct.

I have outlined some of the points about which a technical man must re-orient himself when he is called upon to serve in an administrative capacity. It is apparent that the executive must move in a far larger periphery than the scientist who is left undisturbed in his ivory tower. The job of administration is a challenge and one which everyone of us should be glad to meet. In essence it is a transition, generally gradual, from actual work to the work of making decisions so that others may work more profitably.

An executive's job is primarily a job of making decisions. His conditioning in this capacity must involve qualifying himself to make decisions. With the current trend of scientists moving into executive jobs, it might be sound foresight to begin the conditioning early. It is a readjustment that many of us may have to make in our own careers.

Morgan Goes to Mathieson Chemical

Dr. D. P. Morgan, F.A.I.C., is now administrator of research and development of Mathieson Chemical Corporation. He will be in charge of market research and chemical research and development. He was formerly with W. R. Grace and Company, New York, N. Y.

Please Note

In the table on page 242 of the May issue of THE CHEMIST, second column under the heading "Synonym," a line of space occurs before "Ascorbic acid," instead of after "Riboflavin," with the result that no synonym is indicated for Vitamin C, and those for Vitamins B_2 and A are incorrect.

For the benefit of any students who may be misled, please mark the table in your copy to show that "Ascorbic Acid" is the synonym for Vitamin C, and "Riboflavin" is the synonym for Vitamin B_2. No synonym is given for Vitamin A, where the line of space should have appeared.

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The Career of the Medalist

Francis J. Curtis, F.A.I.C.

Vice President, Monsanto Chemical Company

(An address given at the Medal Presentation Dinner to Dr. Charles Allen Thomas.)

CONSCIOUSLY or unconsciously, or perhaps both there has been a plan behind Thomas' career, which I think a little study will bring out. During the Medieval Period of the history of our Western Civilization, religion was the dominant factor in life. The best brains went into the Church. Churchmen had great influence; they were prime ministers, heads of universities, chancellors of the realm, and wielders of great power. When the Industrial Revolution came along it brought the banker and the business man to the front. Business men had great power over industry and even government. During this period of the last two hundred years, these were the careers young men wanted to follow. Now today we see science coming to the fore and our youth, fired with its possibilities, are cramming the laboratories of our universities so that they resemble over stuffed chairs stretched beyond their elastic limits. Is the scientist ready to take the dominating position which may be open to him?

Thomas' career says that he can, but not as the Russian-blouse clad laboratory worker, dear to the advertising profession, and hence the picture of the scientist for the general public, an individual divorced from mundane matters, an innocent. Dr. Thomas has become an example of the technical statesman of the future and his career is an inspiration to the scientific youth of America to go and do likewise. The key is broadness. How did he do it?

Laboratory Scientist

Thomas' career started in 1923, in the General Motors laboratory, at that time in Dayton, Ohio, working on the problem of anti-knock gasoline in association with the late Thomas Midgley, Jr., and with Dr. C. A. Hochwalt, with whom his career was to be so closely allied throughout his life. Tetraethyl lead was satisfactory from the standpoint of preventing the knock, but something had to be done to get rid of the lead. A bromine compound was found to do it, but bromine was a relatively scarce material and controlled by the Germans. Like the Middle Westerners who make up much of our Navy, Thomas took to the sea and cruised

around in a rowboat, which no one from Massachusetts would have done, sampling sea water at various locations. The result was the good ship Ethyl, which developed the extraction of bromine from sea water by means of chlorine, and for a considerable period of time was the big factor in establishing the United States supply. Immediately we see the chemist stepping beyond the laboratory, refusing to be beaten by the existing circumstances of chemical production.

Thomas and Hochwalt, at this time, had never heard of the eight-hour day and have never paid any attention to it since. They worked out an arrangement with the University of Dayton for the use of its laboratory in the evening and developed there the fundamentals of what turned out to be a very interesting development in fire extinguishers, particularly for gasoline fires. This resulted in their first publication on the effect of alkali metal compounds on combustion, where they showed that the elements of the first group of the Periodic Table have a definite negative catalytic effect on the combustion of hydrocarbons, and that even potassium chlorate in water solution will instantly extinguish gasoline flames.

The development was not of interest to General Motors, and at that time General Motors decided to move their laboratory from Dayton. Hochwalt was a native of Dayton and Thomas had found another interest outside of chemistry, so they decided to strike out for themselves, and backed by Harold and Nelson Talbott, the Thomas and Hochwalt Laboratories were founded as a consulting research firm, with their first laboratories in the attic of a downtown Dayton building. General Motors became their first client and they were assigned the problem of working on synthetic rubber.

From this began Dr. Thomas' lifelong interest in the reactions of aluminum chloride, which finally culminated in a fat volume, the standard work on the subject, called "Anhydrous Aluminum Chloride in Organic Chemistry." Thomas was particularly interested in the reactions between olefins and diolefins in the presence of aluminum chloride, and developed the proton theory of aluminum chloride, explaining the mechanism by which the catalyst helps along such a miscellany of reactions as the cracking of paraffins, and of aromatics, dehydrogenating condensations of aromatic nuclei, isomerizations, and rearrangements in both the aliphatic and aromatic series, polymerization and alkylation.

Here, too, began his work in the general field of synthetic detergents, but the most important was the beginning of his experience with the problems of management. For a consulting firm science alone is not enough. One must get jobs to keep the pot boiling and to meet the pay-

roll, and Thomas was a born salesman. The scientist has taken another step out of the laboratory.

After joining Monsanto, by which the Thomas and Hochwalt Laboratories became the Central Research Laboratory of the Company, Dr. Thomas carried out important work on the synthesis of styrene, studying all of the possible processes and quickly concentrating on the method now in use. Further expansion took place in detergents which resulted in the company's first large-scale manufacture at Nitro, West Virginia. New lines were explored, particularly in the field of oxidation, which work is just now resulting in a radically new method of making one of Monsanto's older products on a large scale.

The Technical Executive

So with Thomas' appointment in 1936 as director of the Central Research Laboratory begins a new phase of more and more concern with management. In 1942, he was elected a member of the Board of Directors, still further broadening his interests and experience. In 1945 he became vice-president and member of the Executive Committee and technical director of the company, and in 1947 he was named executive vice-president. He has moved a long way from the little attic laboratory in Dayton. He is no longer surrounded by beakers, Erlenmeyer flasks, and distilling columns, but by papers and telephones, pastel-shade curtains, and soft lights; and there are many days when it is hard to take it. He has that yearning for the filth of the laboratory but he knows as well as others that one cannot go back, however one may occasionally wish to.

As technical director of the company, Dr. Thomas is constantly developing and practicing new techniques of coordination, so necessary in a company organization which is built on the decentralized plan. He holds quarterly meetings with the research directors and the heads of technical departments, in which a whole day is spent going over each of their problems one by one, making suggestions, and finding out where he can help to achieve the end which the director is seeking. He never fails to attend the annual assemblage of the research directors of the company, where new fields are mapped out and the problems of research managements discussed. He pays regular visits to the laboratories where he does not confine himself to the main office, but sits down in the individual laboratory with the group leaders and their men for a scientific kaffee klatch, which he enjoys more than the meetings of the board of directors.

He was one of the key factors in introducing the plan of academic leaves of absence, whereby four men per year are sent back for graduate work to universities of their own choice, with their full salary paid by the company, the plan that, although

it has only been in operation for two years, bids fair to keep the Monsanto technical staff thoroughly on its scientific toes.

Thomas has one great characteristic, and that is that he does not try to force things beyond the natural pace. He has picked up an idea, originally advanced by Dr. Kistiakowsky, which he calls the retreat plan. This proposes that a group of technical men be set aside periodically from their present duties and definitely from interruption, to talk scientific matters over in the hope of coming out with new ideas. We have not sold our research directors on this plan yet, nor is there any intent to force them, but a good example is being shown by the executive committee of the company itself, which this Spring has adopted this very plan in its own operation.

While Monsanto may have taken Thomas out of the laboratory, the war began to take him out of Monsanto. In 1942 he was asked by the National Defense Research Committee to undertake the development of fuels for rocket motors, and during that time he also became deputy chief of Division 8, under Dr. George B. Kistiakowsky. The work on rocket fuels was successful and a plant was being built in Texas for their production when the war ended. In 1942, also, Dr. Thomas was a member of the Synthetic Rubber Advisory Committee which helped the Baruch Committee to bring out the plan under which the United States synthetic rubber industry was founded and regulated.

In 1943 he joined the Manhattan District as a coordinator, particularly on the chemistry and metallurgy of plutonium. This of course was very hush-hush at the time, and it was also the time when hotel accommodations were extremely difficult to get on short notice. Many a day I have received a telegram from Thomas from somewhere in the West, asking if we could put him up in St. Louis that night. I was surprised that he was paying so much attention to what I thought was the West Coast, but he could usually fob me off with some rather general remarks, particularly with respect to vacations, so that I never did realize what he was doing until it was done. But many a night he would drag into St. Louis, go to sleep, and head East the next norning.

Extensive work was also being carried out at Dayton in the same general field of effort, and when in 1945, Monsanto took over the management of Clinton Laboratories, Dr. Thomas was made the project chief. Here was brought about the first commercial development of radioactive isotopes, which are now finding their way throughout the laboratories and hospitals of the world, and a beginning was made of the study of the utilization of atomic energy for power. Now new con-

struction at Dayton has resulted in a further expansion of work for the Atomic Energy Commission at Miamisburg and Marion.

This ever-widening field of activity has led to more and more work for the nation.

Technical Statesman

I have referred to Thomas' membership on the Advisory Committee for the Baruch Synthetic Rubber Committee. It became obvious that something must be done to prepare a feasible plan for the handling of atomic energy, which would serve as a prototype of an international plan. The Lilienthal Committee of five men was appointed, of which Dr. Thomas was a member. These five men through six weeks of blood, sweat, and I think, sometimes tears, worked out what may become one of the important documents of history. It is a plan with which all of you are familiar because it has been incorporated almost entirely into the international plan advocated by the American Committee to the United Nations. Opposition of one nation has prevented that plan from coming into effect, but you will notice that no one is giving serious consideration to any other plan.

Every man owes a duty to his fellows, particularly in his own profession, and Dr. Thomas has accepted that obligation with interest. In 1942, he was elected a director of the American Chemical Society and has never missed a director's meeting. This says much for his capacity for mental digestion. He was much concerned with the committee which was responsible for the Hancock Report, now gradually being made practical in the reorganization of the Society. In this year of 1948, Thomas is president of the American Chemical Society, and in addition, is spending much of his time and energy in Washington fighting for better handling of our technical brains in the future Selective Service, if we get it, than we had in the past. He is trying to explain to Washington the extreme importance and scarcity of technical ability, not only in wartime but in peacetime, and to make it understood throughout the various branches of the Government that the technical man is not safely expendable.

Personal

Such is the pattern of the career. What of the man? Thomas was born on a farm in Kentucky in 1900. His father was a minister who died young, leaving not much money. Thomas' origin on the farm has had a great influence on his life and he has never lost interest in the farming community. At the present time he owns farms in both Missouri and Kentucky, but they are run very largely by his wife, who is perfectly capable of handling everything from a pitchfork to a herd of cows. Thomas likes to get away for a weekend and putter around. As a boy, he

was a devotee of a cellar workshop and from the beginning had great confidence in his deductions. We almost would not be at this meeting, if his aunt hadn't looked out of the window one day and seen him perched on the roof of the barn with a homemade airplane in which he was just about to launch himself, with complete belief in his own mathematics.

After receiving a B. S. degree from Transylvania in 1920 and an M. S. from M. I. T. in 1923, he started to work. Since then he has been awarded doctor's degrees from Transylvania and Washington University at St. Louis.

Thomas' salient characteristics are great broadness of interests. He is a joiner of joiners and is said to have the biggest club dues in St. Louis. His executive ability is well known and has served him at more than one point. In the early years at Dayton, he had a red Buick which was in pretty bad shape from the paint standpoint. He looked around to find someone who was really interested in paints, and he and Dick Gaugler agreed they would paint the car. Every night Dick would be ready to work on the car, but about then Hank Du Pont would drive up with a couple of the Talbott girls. It was inevitable that Thomas would have to go, but Dick would work on until midnight and finally completed the whole job himself. Thomas not only got the car painted but he also got Miss Margaret Talbott to become Mrs Thomas. That is what is called executive ability.

Thomas is full of energy and cheerfulness.

He is interested in shooting and fishing. No Monsanto gathering is complete unless he has been persuaded to raise his voice in "Wagon Wheel." He has even been known to sneak out to the symphony in St. Louis on Sunday afternoon, hoping that no technical man would see him. But for the most part his has been a life devote to serious undertakings, with not enough time left for play. Thomas takes his vacations in small doses, a weekend here, a day there. It is very difficult for him to be persuaded to leave for any extended period.

Here then is an individual, as individual as they make them with a social conscience that leads him to devote a goodly fraction of his energy to national service, to the service of his fellow chemists, with no hope or desire for material reward. If science is to wield an influence in this world commensurate with its possibilities, we should set up as a goal for our young men the Thomas achievement as a technical statesman.

Our Silver Annviersary Meeting

—CHEMICAL & ENGINEERING NEWS

Edwin I. Oppel congratulating President Flett on his election

DR. Foster D. Snell, retiring president, opened the Silver Anniversary Meeting with a brief address on "What Does The Chemist Do For Industry."

This was followed by a panel of speakers on the general theme of "The Professional Activities Of Other Societies." The American Institute of Electrical Engineers was represented by Mr. Charles C. Wilson, assistant to secretary. The American Chemical Society appointed Dr. W. A. Mosher, head of the Department of Chemistry, University of Delaware, Newark, Delaware, to discuss its professional activities. The American Society of Civil Engineers was represented by Mr. E. Lawrence Chandler, assistant secretary; and the American Institute of Chemical Engineers by W. T. Nichols, technical assistant to the executive vice-president, Westvaco Chemical Corporation.

Annual Business Meeting

The 1948 annual business meeting opened with the approval of the minutes of the preceding annual meeting.

The secretary read the following list of members who died during the year:

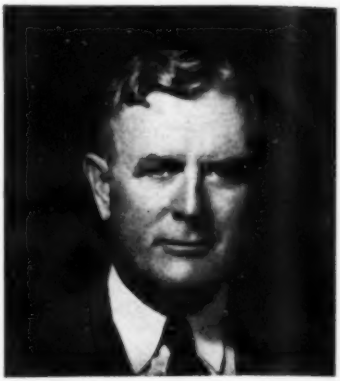
FELLOWS
E. M. Fleck
Paul Goedrich
E. B. Henderson
Treat B. Johnson
Lester Kirschbraun
Herbert R. Moody
Howard S. Neiman
Robert T. Northcutt
Raymond R. Ridgway
Clark S. Robinson
Glen M. Smyth
John Traquair
Frank C. Whitmore

MEMBERS
C. Elwood Hayes
John H. Vail

A minute of silence was observed in memory of these members.

The secretary announced that the following officers and councilors had been elected by the membership:

President, Lawrence H. Flett
Vice-President, Dr. Raymond E. Kirk
Secretary, Dr. Lloyd Van Doren
Treasurer, Dr. Frederick A Hessel
Councilors, Dr. M. L. Crossley
Dr. James R. Withrow
John M. McIlvain



—AFFILIATED PHOTO—CONWAY
NEW VICE PRESIDENT
Dr. Raymond E. Kirk

Amendments To Constitution

The following amendments to the Constitution of the A.I.C. were adopted:

ARTICLE II

Section 3. Honorary members shall be be persons of unusual distinction in chemistry, by reason of professional accomplishment and service to the profession or the public, considered as meriting special recognition, who have been nominated by the Committee on Honorary Membership and elected by the Council.

Section 4. Life members shall be Fellows, or those who have the qualifications for a Fellow, who have paid such commutation for dues as may be provided by the Council, on approval by the Council.

Section 5. Fellows shall be chemists who have achieved full maturity in the profession as evidenced by record of outstanding scientific accomplishments

or by having attained positions of distinction or responsibility.

ARTICLE II

Section 6. Members shall be chemists graduated by accredited institutions who have made scientific contributions or have acquired responsible positions in their profession.

ARTICLE II

Section 7. Associates shall be graduates in chemistry from accredited institutions who are seeking a more advanced grade of membership in the Institute. It is expected that the advanced grade will be obtained within five years of the date of election.

ARTICLE II

Section 8. The Council is empowered in exceptional cases, to consider and accept equivalent qualifications other than those set forth above or indicated in the By-laws.

ARTICLE II

Section 9. Any person desirous of membership in the Institute shall apply therefor in writing on a form approved by the Council. Such application shall be considered by the Committee on Qualifications, who shall submit a report thereon to the Council. Approval by the Council shall constitute election of the applicant.

ARTICLE II

Section 10. Fellows shall have the right to vote on all matters, and Members shall have the right to vote on all matters except amendments to the Constitution (see Article VII, Section 4). Associates may attend all meetings and may have the privilege of the floor, but may not vote.

ARTICLE II

Section 11. Any Fellow, Member, or Associate shall be dropped from the roll (a) for failure to pay his dues within one year after they become due, provided that no such member shall be dropped unless an appropriate notice has been sent to the member at his last known address by the Treasurer of the Institute, and shall fail to pay his back dues within a period of four weeks from the date of such notice, or (b) for cause by two-thirds vote of the Council after written notice as to the charge preferred has been sent to the person, an opportunity to answer the same within a period of not less than four weeks after such notice has been given, and an investigation has been made.

—BLACKSTONE STUDIOS

NEW COUNCILOR

Dr. M. L. Crossley

ARTICLE III

Section 1. The Governing Board of the Institute shall be composed of the following:

a. The officers of the Institute who shall be a President, a President-elect, a Treasurer, and a Secretary, who shall be members of the Council.

b. A Board of Directors, composed of

President, President-elect, Treasurer, and Secretary, and nine Councilors-at-large.

ARTICLE V

Section 1. (beginning with 14th line) The Committee on Nominations shall consist of the President, President elect, the secretary, and the Chairman of all the Local Chapters.

The reports of the various officers, committees, and chapters were presented.

Dr. Foster D. Snell, retiring president, turned over the chair to the new president, Mr. Lawrence H. Flett.

On taking the chair, Mr. Flett stated:

"Theoretically every administration should be better than the last one. THE AMERICAN INSTITUTE OF CHEMISTS has finished the best year in its history, and I cannot give too much credit to Dr. Snell who personally has played such an important part in its accomplishments. Our membership is stronger and better than ever. We have an important work to do and it is certainly a privilege to work with people who are so anxious to do what they can to advance the profession.

I hope that each one of you will take the responsibility to improve this organization. We want members but we do not want just numbers of members. We want good members, which is much more important. We want a literature. And I think all of us should take more to heart the problem of putting down on paper these facts that concern our professional position, so that we create a literature that will serve our purpose. In these times of changing trends, public relations are becoming more important for every organization, and our organization wants to look more and more to the relations which we chemists have with the public."

—ATLANTIC MAGAZINE

NEW COUNCILOR

John M. McIlvain

The following resolution was presented and adopted:

Resolved, that the members of THE AMERICAN INSTITUTE OF CHEMISTS at this Annual Meeting assembled do hereby accept, ratify, confirm and affirm all of the acts of the National Council and of the Board of Directors on behalf of The American Institute

of Chemists during the fiscal year ended April 30, 1948.

A resolution from the floor was presented by Karl M. Herstein, F.A.I.C., and after discussion, it was referred back to a committee, for presentation to the National Council.

Dr. Raymond E. Kirk presented the following resolution:

"I want to speak on behalf of the members of THE AMERICAN INSTITUTE OF CHEMISTS in respect to the valiant services rendered during the past year by our retiring president. I know I speak the sentiments of the entire INSTITUTE in asking permission to move a resolution of thanks and appreciation to Dr. Foster D. Snell for his fine services. He has been an inspiring leader; he has added to the prestige of the INSTITUTE; he has followed in the wake of a number of other fine presidents, and has proved himself equally their peer. I would like, therefore, to move this resolution of commendation on the part of the INSTITUTE."

The resolution was passed with a rising vote of appreciation to Dr. Snell.

A vote of thanks was given to the officers, councilors, committees, chapter chairman, chapter officers, and to all who gave time and effort to carry on the work of THE AMERICAN INSTITUTE OF CHEMISTS during the fiscal year.

In the evening the Medal Presentation Banquet was held jointly with

COUNCILOR
Dr. James R. Withrow

the New York Section of the American Chemical Society. Dr. Foster D. Snell served as toastmaster.

A.C.S. Business Meeting

Dr. Hans T. Clarke, F.A.I.C., chairman of the New York Section, A.C.S. conducted a brief business meeting of the section, at which new bylaws were adopted, and the following new officers of the Section were elected: Dr. Clifford F. Rassweiler, F.A.I.C., chairman-elect, became chairman, to take office on July first. Dr. Robert M. Burns, chemical director of Bell Telephone Laboratories, was named chairman-elect. Professor Edward J. Durham, F.A.I.C., of New York University, was re-elected secretary, and H. Burton Lowe, executive vice-president and treasurer

—CHEMICAL & ENGINEERING NEWS

Scene during Medal Presentation Dinner

of the Reinhold Publishing Corporation, was re-elected treasurer.

Introductions

Dr. Snell introduced the guests at the head table who included in addition to the speakers, Dr. Lloyd Van Doren, F.A.I.C., secretary of the INSTITUTE; Alden Emery, secretary of the American Chemical Society; C. S. Kimball, F.A.I.C., secretary, American Section, Society of Chemical Industry; Harold E. Talbott, chairman, Finance Committee, Electric Auto-Lite Company; Dr. E. J. Durham, F.A.I.C., secretary New York Section, A.C.S.; Dr. George B. Kistiakowsky, head, Department of Chemistry, Harvard University; Dr. C. A. Hochwalt, F.A.I.C., vice-president, and director of Central Research Laboratory, Monsanto Chemical Company; Chester I. Barnard, president-elect, Rockefeller Foundation; William M. Rand, president, Monsanto Chemical Company; Dr John W. Thomas, F.A.I.C., retired chairman of the Board, Firestone Tire and Rubber Corporation, and 1945 A.I.C. medalist; Dr. Harry A. Winne, vice-president, General Electric Company; Dr. Joseph J. Mattiello, F.A.I.C., vice-president, A.I.C., David R. Calhoun, president, St. Louis Union Trust Company; George H. Walker, Jr., president, George H. Walker Company; Dr. Albert B. Newman, president, American Institute of Chemical Engineers, and Dr. Frederick A. Hessel, F.A.I.C., treasurer of the INSTITUTE.

The following persons were also introduced: Dr. Joseph Guillissen, technical director Union Chimique Belge, Uccle, Belguim; Dr. M. L.

Crossley, F.A.I.C., A.I.C. medalist for 1947; Dr. Gustav Egloff, F.A.I.C., A.I.C. medalist for 1940; Lawrence H. Flett, F.A.I.C. new president, A.I.C.; Dr. Marston T. Bogert, F.A.I.C. A.I.C. medalist for 1936; and Dr. T. Howard Butler, chairman of the Board, William Butler and Company (Bristol) Ltd., England.

A.I.C. Twenty-five year Members Honored

Dr. Snell reminded the audience that 1948 is the twenty-fifth anniversary year of the INSTITUTE. Forty-four of the original charter members are still among our membership. Fifty-five members who joined in 1925 are still members.

"It is going to be my pleasure and honor," Dr. Snell announced, "to present each of these twenty-five year members with a written memento of the occasion, and a small, very utilitarian gift. For brevity, the gift will be presented to only one of the charter members at this meeting, as a symbol, and the others will be presented by mail. When it came to the question of which one to select, we chose the only woman charter member, Mrs. T. R. McDearman, better known to you as Miss Calm M. Hoke.

"This simple ceremony symbolizes the presentation of a memento by the INSTITUTE to each of its ninety-nine members who have been with us for twenty-five years.

"We are grateful to our founding members who created this very live organization. We are hopeful that in the next twenty-five years, its growth, and the tempo of its voice will be at a steadily accelerated pace.

—CHEM. & ENG. NEWS

MRS. CHARLES ALLEN THOMAS
MRS. FOSTER D. SNELL
MRS. DAVID R. CALHOUN
MRS. CHESTER I. BARNARD

"This is my swan-song in this office. I will take this opportunity to express my deep appreciation to all of the other officers, the councilors, the committees, the chapter officials, and the members who have contributed so much to the progress of the INSTITUTE during the time when I have been honored as president."

Medal Presentation

Francis J. Curtis, vice-president, Monsanto Chemical Company, spoke on "The Career of the Medalist," (see page 273).

The 1948 Gold Medal of the A.I.C. was presented to Dr. Charles Allen Thomas by Dr. Foster D. Snell.

—CHEMICAL & ENGINEERING NEWS

Dr. Charles Allen Thomas accepting the A.I.C. Medal from Dr. Foster D. Snell

Citation

Charles Allen Thomas, graduate of Transylvania College and Massachusetts Institute of Technology; D. Sc. of Washington University, collaborator in the development of tetraethyl lead; consulting chemist and partner in Thomas and Hochwalt; technical director and executive vice president of Monsanto Chemical Company; project director of Clinton Laboratories; collaborator in the study of rockets; recipient of Medal of Merit from the Secretary of War; collaborator in the U. S. plans for international control of atomic energy; recipient of the Industrial Research Institute medal; president of the American Chemical Society; curator of Transylvania College; trustee of the Queeny Educational Founda-

tion, author of many papers; patentee or co-patentee of numerous patents; administrator who demonstrates that the men working for him are individuals, not mere automatons; as a leader and administrator, and one who encourages scientific research and the profession of chemist, THE AMERICAN INSTITUTE OF CHEMISTS honors itself by presenting you with THE AMERICAN INSTITUTE OF CHEMISTS' medal.

Dr. Charles Allen Thomas, in his acceptance address, spoke on "The Scientist as Administrator." (See page 265), an inspiring conclusion to a notable meeting, this Twenty-fifth Anniversary celebration of THE AMERICAN INSTITUTE OF CHEMISTS.

Student Medals Awarded

The New York and Washington Chapters of THE AMERICAN INSTITUTE OF CHEMISTS have awarded student medals for 1948 to the following students, "in recognition of leadership, excellence in scholarship, and character:"

New York Awards

Gert Ehrlich
Columbia University

Martin Epstein
City College of New York.

Martin Grayson
New York University
University Heights

Eric B. Hotelling
Rutgers University

Raymond Kurkjy
Fordham University

John Rundquist
Queens College

David Taber
New York University
Washington Square

Arthur F. Wagner
Princeton University

Sanford Weil
Brooklyn College

Robert W. Zwanzig
Polytechnic Institute of Brooklyn

Washington Awards

David F. Hinkley
University of Virginia

Paul Augustus Thomas, Jr.
George Washington University

Leonard Cullo
The Catholic University of America

Twenty-five Years of Women in Chemistry

Florence E. Wall, F.A.I.C.

Consultant, New York, N. Y.

(A Silver Anniversary Article)

THE assignment to commemorate the Silver Anniversary of THE INSTITUTE by reviewing the situation of women in chemistry during this past quarter-century gives an odd feeling of having gone through a cycle. It is a "This-is-where-I-came-in" sort of feeling, as in the movies—because 1948 finds us all at almost the same point in a period of post-war readjustment as we were experiencing in 1923. That year, however, marked the beginning of a rise from the really serious industrial depression that had followed the abrupt closing of the war plants. The better efforts at reconversion have prevented a blow of the same severity this time, but in the reshuffling and sifting of demobilized technical personnel after both wars many that had engaged in chemical work found that they could not pass as chemists by the standards of peacetime.

Just as during the recent war, the papers during World War I carried many articles — "human interest stories"—on what women and girls were doing in all branches of science and technology, but I never knew any of them. Except for one girl from my own college, I never met another woman chemist until September of 1923, when I attended a meeting of the then very new American Institute of Chemistry and found Calm Hoke as the only other woman present, and learned that she was the only woman who had joined as a charter member.

It did not take much effort or explanation to convince me that the new Institute offered me something that no other organization then had to offer— a recognizable status that was like firm ground under my feet. I saw that my sound chemical education which had been utilized in some years of teaching science in high school, and in the kaleidoscopic surroundings of the rapidly growing American chemical industry during and after the war had given me the right to think of myself as a professional *chemist,* even though at the time I was admitted to the Institute I was a temporarily expatriated victim of the post-war depression.

Where were all the other women chemists in 1923? An exhaustive study of the professional opportunities in

this field,[1] estimated that there were then about 22,000 chemists in the United States and that 4-5 per cent of these were women. Many of them were well established, with recognized contributions to their credit, especially in biochemistry and nutrition. A large number were holding important positions as teachers; several were active in industrial research and development; a fair proportion were scattered through various types of positions in Civil Service; and still others were utilizing their chemical knowledge in a wide variety of non-laboratory positions—in libraries, and in editorial, secretarial, and general literary work. In the general information on educational and personal requirements, and on the advantages and disadvantages of chemistry as a career for women, any reader might think that this monumental book had been published yesterday.

How did it happen that I did not know any of these women? My own experience may have been typical of many of us in those days. During my four years in chemical industry (1917-1921) I was the only woman with technical training (or "the only woman, period") on any job I had. Undoubtedly I should have met some others in the American Chemical Society but no one ever encouraged me to join it. (Why should you? We have all the publications here; you certainly could not be spared to go gadding out of town to meetings.") My last position at that time was the investigation of a process for cracking petroleum, for which I had my own laboratory and pilot plant, so I was not conscious of the general situation. When, therefore, the work was completed in the spring of 1921, I was aghast to discover that all industry had ceased around me.

Women Chemists After World War I

All attempts to find another position in industry were futile. Nobody had a spot for a woman when there were so many men available. After a few months I went to Europe for nearly a year, but when I returned, in August of 1922, the situation seemed to be worse. So many men had gone from industry into teaching that even that was not available—that is, not for "only chemistry and physics, and preferably near New York." A resourceful person in a teachers' agency persuaded me to try my luck with English and music (which soon developed into general tutoring—everything but chemistry and physics) in Havana. And it was while I was in New York on vacation the next year that I was invited to that early meeting of the A.I.C. In my yearning to return to chemical work as soon as possible, I joined the Institute, kept in touch with things through the bulletins that Miss Hoke ground out so faithfully, and returned to New York

1. WOMEN IN CHEMISTRY. Published by the Bureau of Vocational Information, New York, 1922.

late in 1924 after a leisurely trip around South America.

Those were the days! At least three jobs for everyone on every tree, and it was difficult to choose among those available in teaching, industry, and writing. In 1926, the A.C.S. sponsored a remarkable innovation for the women chemists: we were to be admitted to the dinners preceding the meetings of the New York Section at The Chemists' Club. (What fun Miss Hoke and I used to have there, trying to convince people that we were on legitimate business, as mere "chemists in skirts" — not "ladies", who were under definite restrictions!) Gradually more women joined the INSTITUTE; practically all of them were in industry or government positions, whereas the teachers belonged to the A.C.S.

Women Chemists in the Depression

In the general program of retrenchment following the financial crashes of 1929, many worthy women chemists were squeezed out of good positions and forced to turn their talents in other directions. Many of the girls were in bad straits in those days. Certain branches of chemistry, notably metallurgy, were practically closed to them. Those that could afford to offer "made work" (average compensation, $15 a week) usually limited the employment to men. One woman, an expert metallurgist who loved the work, when dropped from a position after several years, managed to keep herself going somehow while she studied bacteriology. She soon became just as expert in that field; but many others were not so fortunate in their efforts at readjustment.

Meanwhile, girls were still enrolling for courses in chemistry in college, and it soon became clear that something had to be done if they were to find positions after they were graduated. The technical employment agencies became swamped with the applications of girls from colleges where a major in chemistry was presumed to lead only to medicine; and as that field was restricted, they all hoped to be hospital technicians — literally hundreds of them. The question of *What To Do With Your Chemical Education After You Get It* became of paramount importance, and for several years during the depression anyone that seemed to be gainfully employed was likely to be in demand for talks on vocational guidance to college classes and clubs.

To the desperate ousted chemists, both the professional and the amateur in guidance had to say: "All right; your situation is dreadful, but suppose there may never be any more chemistry for you to work at—what else can you do?" To their credit be it said that the women seemed to be more resourceful than the men. Those of us that were asked to share our wisdom and experience with those still in college had to suggest that

they stay within fields that are quaintly considered more appropriate for women, and acquire all sorts of side-lines to offer with their chemistry —library techniques, foreign languages, stenography, and especially knowledge of English, in writing, editing, advertising, publicity, etc.[2]

World War II

Then came 1939 with its agitation for defense; then 1941, and there we were, at war again! Even the crowded classes and accelerated courses were barely able to fill the demands for women and girls to plunge right into all kinds of chemistry we had been telling them to avoid. Again they have acquitted themselves with credit; again many will drop all further thought of chemical work, but a certain number of those more seriously interested will wish to continue in chemistry and make a career of it. And so we are back where we started!

Women Chemists Today

It would seem that now, during this period of post war readjustment, the women chemists should make every effort to consolidate their gains. A recent study[3] says that women now number about 7 per cent of the total number in the country, and with all the chemists back from the wars, plus all the hopeful GI's crowding into and out of the colleges, competition will be keen and deadly. This generation of girls will learn as we did, the utter futility of claiming to be "as good as a man." It can be proven only by showing that one is actually better than a man, and at his own work; and that usually kills all prospects.

It has been conceded that women chemists are dependable and successful in certain types of research; and that in analytical work they are easily as good as men, if not better. Success here calls for no more than unassailable knowledge of fundamentals which, like any ready tool, can be shifted from one thing to another as required, whether it be metallurgy in war time, or the more diversified pursuits of peace. The same principal applies to any branch of chemistry. Given any recruit that really knows the basic science, any director will gladly provide specific instructions for the kind of work at hand.

It does seem though that the requirements for undergraduate curricla in chemistry should be broadened somewhat, to include, instead of advanced courses in the fundamentals, more and varied short "exposure" courses in different branches of chemistry, so that the prospective chemist may test aptitudes and become familiar with more tpyes of chemical procedures. Especially is there a real need for instruction—with credit! on

2. THE STATUS OF WOMEN CHEMISTS, Chemist, 15:174 (1938).

3. EMPLOYMENT PROSPECTS FOR WOMEN CHEMISTS. Mary Alexander, in Symposium on the Placement of chemists and chemical engineers; Division of Chemical Education, A.C.S. Chicago, Illinois, April 20, 1948.

chemical literature, technical writing, and, for its underlying philosophy as well as its cultural value, history of chemistry. Add to these one or two branches of related sciences, a good grounding in mathematics and languages as tool subjects, and any chemist— man or woman—has a sound foundation on which to build a career in chemistry.

Professional Consciousness

Something that has bothered me for many years is the lack of professional consciousness among women chemists. Volume I of "American Women" (1934) lists nineteen chemists, and Volume II (1936), 58—figures that seemed to be a sad reflection of something or other. Leafing through the books, however, revealed a large number of other names, well known through the Institute or the A.C.S., but listed as "Professors," "Instructors", "Nutritionists", etc. The best known women chemist in New York then listed herself as a "Writer." I remember airing my mind on this general subject, years ago,[4] and lamenting that too many chemists classify themselves by their current occupation, rather than by their educational background and training, which would make them think of themselves always as *chemists*, who just happen to be teaching, or writing, or editing, or whatever.

Stronger professional consciousness would undoubtedly make women chemists do more for themselves and one another in the matter of salaries, which are too often scaled lower than those paid to men for comparable work. This is an ever burning question—something else for the INSTITUTE to worry about, and soon.

After all, there is no sex to chemistry, any more than there is to any other established profession. There is plenty of room for both men and women practitioners in the field, and it is only intelligent not to compete in the more obvious branches when there are others in which one or the other may have the chance to excel. If out of what we (should) have learned from the experience of two wars and their aftermath we can evolve something sensible and adaptable, the story during the INSTITUTE'S *second* quarter-century should be one of steady progress for those professional chemists that happen to be women.

4. WHAT IS A PROFESSIONAL CHEMIST? Chemist 11:203 (1934).

Research on contract basis:
To improve present products
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Communications

Recommended for General Reading

To the Editor:

Burt Wetherbee's suggestion in the April CHEMIST and your editorial note to it promise a delightful new department, especially if amplified by one simple rule: Submit only titles of books which you yourself have read!

My first nomination in this connection is: Erich Kahler's "Man the Measure—A New Approach to History." Pantheon Books, New York (1943), 700 pp., $5.00.

This book contains a great synthesis, achieved not by a preconceived hypothesis, but by re-interpreting history "not by discussing it, but by re-telling it." History is concerned with the development of the human being. The "question at the heart of the present catastrophe" is: "Is there a human quality, or are men, assuming themselves to be but a more highly developed form of beast, to develop beastliness to ever-higher forms? . . . when we look to the past of mankind for the answer to this question, we are looking to the future of man."

You can single out chapters in this book and enjoy the clear, comprehensive presentation of special developments, or you can think about general conclusions like this one: "The technical situation itself demands that the ruling principle be the welfare of man over and against the idol of production," followed by a discussion of: "What is the welfare of man, as expressed in concrete and positive terms?" In addition, you may collect rare quotations, like this one after Louis XIV: "As your power increases, you must redouble your charm." This book can enrich its reader with facts and ideas!

—Dr. Eduard Farber,
F.A.I.C.

Best Wishes

To the A.I.C.

The privilege of participating in this program to commemorate the Silver Anniversary of THE AMERICAN INSTITUTE OF CHEMISTS is deeply appreciated. On behalf of the American Society of Civil Engineers, and for myself, I extend sincere congratulations on this occasion, and best wishes for long continued years of success for your organization. May you go forward with increasing benefit to your members and useful service to mankind.

—E. Lawrence Chandler

Membership Increase Anticipated

To the Editor:

THE CHEMIST commemorating the twenty-fifth anniversary of THE AMERICAN INSTITUTE OF CHEMISTS is a beautiful issue, particularly the cover. Read the articles with much interest.

May we look forward with even greater anticipation to the coming twenty-five years, with the INSTITUTE having at least a five-fold increase in its total membership.

—Dr. Gustav Egloff, F.A.I.C.

Thank You

To the Editor:

The copy of the Silver Anniversary issue of THE CHEMIST has just reached my desk, and I want to compliment you on the excellent publication. You have done a very fine piece of work in putting out such a splendid issue, for it is a credit to THE AMERICAN INSTITUTE OF CHEMISTS.

—Dr. R. K. Carleton, F.A.I.C.
Associate Professor of Chemistry, Boston College

Professional Status

To the Secretary:

In the two years that I have been associated with the INSTITUTE, I believe that the INSTITUTE has made great strides in helping me understand the entire question of professional status of chemists today.

—Dr. Robert Simonoff, F.A.I.C.

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Necrology

Joseph J. Mattiello

We record with keen regret the untimely passing on May 16, 1948 of Dr. Joseph J. Mattiello, vice president of The Institute of Chemists from 1946 to 1948, at his home 536a Fifth Street, Brooklyn, N. Y., at the age of forty-eight. Dr. Mattiello was a vice president and technical director of the Hilo Varnish Corporation of Brooklyn.

Dr. Mattiello was a sergeant with the "Fighting 69th" in World War I. He lost his right leg in the Muese-Argonne Offensive. As a hero of that war, he was accorded a burial with full military honors.

After graduation from Polytechnic Institute of Brooklyn in 1925, Dr. Mattiello started with the Hilo Varnish Company as chemist. He was placed in charge of the Varnish Laboratory in 1929 and was named chief chemist in 1932. In 1936, the year he received his Ph.D. from Columbia University, Dr. Mattiello was named technical director of the company and became its industrial sales manager a year later. He became vice president in 1943.

Dr. Mattiello was editor of a five volume work, "Protective and Decorative Coatings," and at his death was preparing a sixth volume. As an evidence of his gratitude to his Alma Mater he established, with the funds accumulating from the sale of the first volume, a research fellowship in paint technology at the Polytechnic Institute of Brooklyn, known as the Joseph J. Mattiello Fellowship.

During his all too short professional career, he has been signally honored. He received the Meritorious Civilian Service Award for his outstanding services in solving problems in the development of exterior coatings for quartermaster corps equipment during the past war. The French Government made him a member of the Legion of Honor, while he was visiting Paris last year as a representative of the Federation of Paint and Varnish Production Clubs. This latter honor was somewhat of a surprise to "Joe." As he laughingly recalled it, he was hustled to the head table and before he knew it he was standing up having a decoration pinned on him.

Dr. Mattiello has been a constantly loyal devoted member of The American Institute of Chemists, acting as chairman of the committee on Annual Meeting Arrangements for both 1947 and 1948 and serving as vice president from 1946 in a term ending May 7, 1948.

He was a member of the American Institute of Chemical Engineers; the American Society for Testing Materials; the American Chemical Society; the American Society of Military Engineers, and honorary member of the Oil and Colour Chemists of Great Britain.

All will remember genial "Joe" and his broad smile and optimistic attitude as an indefatigable worker, a distinguished and capable chemist, who always had something of real constructive value to contribute to the solution of the problems at hand. He was a likable fellow and we shall all miss him.

Besides his widow, he survived by four daughters, Mrs. Margaret Kimm and Mrs. Elizabeth Yozzo, and Misses Rosamond and Barbara Mattiello; a sister, Mrs. Elizabeth Dephilips, and a brother, Guido.

—J. R. B.

Paul Goedrich

Dr. Paul Goedrich, research fellow, New Jersey College of Pharmacy (Rutgers University), Newark New Jersey, died March 15th at the age of sixty-two.

He was born in Vienna, Austria, and received the United States citizenship in 1937. He received the D. Sc. in chemistry from the State Polytechnic Institute of Vienna in 1912. From 1930 to 1934 he served as consultant for Merck and Company on germicides, fungicides, and insecticides. In 1935 he became Research Fellow for the New Jersey College of Pharmacy.

He specialized in germicides, fungicides, antibiotics, iodine compounds and sterilization. He held several United States patents in these fields, and was the author of a number of papers which appeared in the *Journal of the American Pharmaceutical Association.*

He became a fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1947.

Edwin B. Henderson

Edwin Burdette Henderson, chief petroleum chemist, Los Angeles County Department of Weights and Measures, died March 29th at the age of fifty-two.

A native of Illinois, Mr. Henderson came to California after having served his country well and having been seriously wounded in World War I. He received his Master's degree from the University of Southern California in 1926.

After graduation, he was engaged in petroleum research with Standard Oil Company of California at El Segundo, and during the last seventeen years he rose to the position of chief petroleum chemist.

A Fellow of THE AMERICAN INSTITUTE OF CHEMISTS for several years, he assumed an active role in the Los Angeles Chapter of the INSTITUTE and had been treasurer since 1944.

He belonged to many other scientific societies, among them the American Association for the Advancement of Science, the American Chemical Society, and the California Natural Gas Association.

COUNCIL

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Vice-president, Raymond E. Kirk
Secretary, Lloyd Van Doren
Treasurer, Frederick A. Hessel

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Maurice Siegel, *Baltimore Chapter*
Foster D. Snell, *Past President*
W. D. Turner, *At-Large*
James R. Withrow, *At-Large*
Lincoln T. Work, *At-Large*

April Meeting

The 246th meeting of the National Council was held April 27, 1948, at 6:00 P.M. at The Chemists' Club 50 East 41st Street, New York, N. Y. President Foster D. Snell presided. The following officers and councilors were present: H. L. Fisher, F. A. Hessel, D. B. Keyes, R. E. Kirk, J. J. Miskel, D. Price, G. L. Royer, N. A. Shepard, F. D. Snell, John Staub, L. Van Doren, L. T. Work. C. P. Neidig and V. F. Kimball were present.

The minutes of the previous meeting were accepted.

The treasurer's report was accepted.

The secretary reported that the membership on April 1, 1948 numbered 2201.

A letter from Dr. J. P. Montgomery concerning his election to Fellow membership for Life was read.

A letter, from a Committee appointed by the Northern Ohio Chapter of the A.I.C., in which the Northern Ohio Chapter asked to be dissolved and then to be granted a charter as "The Ohio Chapter," was presented. Upon motion made, seconded, and carried, it was decided to grant the request to dissolve the Northern Ohio Chapter; said Chapter being thereby dissolved.

Upon motion made, seconded, and carried, it was agreed to accept the petition of the 26 Fellows of the Northern Ohio Chapter to form "The Ohio Chapter," and "The Ohio Chapter" was thereby instituted.

An invitation from the National Education Association that the AIC send a representative to the National Conference on Education of Teachers, was presented. It was suggested that the Secretary ask Dr. James R. Withrow to represent us at this meeting

An invitation from the University of Arizona, that the AIC send a representative to the inauguration of James Bryon McCormick as President was presented, and Dr. A. R. Kemmerer was suggested as a suitable representative.

An invitation from the Case Institute of Technology, that the AIC send a representative to the inauguration of T. Keith Glennan as president, was presented and it was suggested that the chairman of the Northern Ohio Chapter serve as this representative.

A letter from Georgia State College for Women announced that the Herty Medal would be awarded to Dr. Wortley F. Rudd on May first.

In the absence of Dr. Joseph Mattiello, Mr. C. P. Neidig reported that arrangements for the Annual Meeting were being completed.

Dr. Lincoln T. Work reported that the Committe on Mementos had ordered a small token for those who have been with the Institute for twenty-five years.

Plans for future annual meetings were discussed.

The following new members were elected:

LIFE MEMBERS

Hope, Fred J.
Chemist in charge of research H. Kohnstamm & Co., Inc., Brooklyn, New York.

FELLOWS

Albert, Elihu Dale
Chemist, Keystone Varnish Company, Brooklyn, New York

Andreas, John Moore
Member of Research Staff, Technicolor Motion Picture Corp., Hollywood, California.

Bean, Frederic Roland
Technical Staff Supervision, Eastman Kodak Company, Kodak Park, Rochester, New York.

Bechtold, Frank Jr.
Chief Chemist, Garwood Plant, Aluminum Co. of America, Garwood, N. J.

Belasco, Irvin J.
Research Chemist, E. I. duPont de Nemours Co., Inc., Chemical Division, Ammonia Dept., Experimental Station, Wilmington, Delaware.

Booher, Lela E.
Chief Nutritionist and Director of Nutrition Laboratories, General Mills, Inc., Minneapolis 14, Minnesota.

Bowman, William Henry
Manager, Sales Department, Jefferson Chemical Co., Inc., New York, N. Y.

Brewster, Ray Quincy
Professor of Chemistry, Chairman of Department, University of Kansas, Lawrence, Kansas.

Brown, Frank E.
Professor of Chemistry, Iowa State College, Ames, Iowa.

Buckwalter, Howard McWilliams
Manager, Cellulose Research Laboratory, U. S. Rubber Company, Detroit, Michigan.

Bywater, William Glenn
Director of Research, S. B. Penick & Company, New York 7, N. Y.

Carruthers, Christopher
Research Associate, Barnard Free Skin & Cancer Hospital, St. Louis, Missouri.

Carson, John Fulton, Jr.
Research Chemist, Western Regional Research Laboratory, U. S. Dept. of Agriculture, Albany, California.

Cavett, Edwin Shelly
Sales Engineer, Mutual Chemical Company of America, New York 16, N. Y.

Cheyney, LaVerne E.
Research Supervisor, Battelle Memorial Institute, Columbus 1, Ohio.

Conrad, Ralph M.
Director, Bureau of Industrial Research, University of Denver, Denver 10, Colorado.

Crookshank, Herman Robert
Instructor in Biochemistry, Medical College of Alabama, Birmingham, Alabama.

Debye, Peter J. W.
Head of Chemistry Department, Cornell University, Ithaca, New York.

Dille, Charles A.
Director, Institute for Research; *Director,* Clinical Pathological Laboratory and *Director of Laboratories,* Good Samaritan Hospital, Dayton, Ohio.

Glymph, Eakin Milton
Research Chemist, Firestone Tire & Rubber Co., Akron 17, Ohio

Goff, James Thumwood
Sales Department, Columbus Varnish Company, Columbus, Ohio.

Hale, James Frank
Research Director, The Borden Company, Manufactured Products Div., Syracuse 4, New York.

Koch, John Michael
Patent Agent, Kaiser Company, Oakland 12, California.

Koenig, Virgil LeRoy
Research Biochemist, Armour Laboratories, Chicago 9, Illinois.

Kremers, Howard Earl
Director of Research, Lindsay Light & Chemical Co., West Chicago, Ill.

Lanson, Herman Jay
Supervisor of Resin and Varnish Dept., Grand Rapids Varnish Corp. Grand Rapids, Michigan.

Lasky, Wayne E.
Chief Chemist, Gulf, Mobile and Ohio R. R., Bloomington, Illinois.

Malizia, Charles A.
Vice President and Technical Director, New Jersey Paint Company, Wallington, New Jersey.

Schwarcz, Morton
Chief Research Chemist, Edwal Laboratories, Chicago, Illinois.

MEMBERS

Bartilucci, Andrew
Chemist - pharmaceutical, Army-Navy Medical Procurement Offic, Brooklyn, New York.

Gropp, Armin H.
Instructor in Chemistry, University of Florida, Gainesville, Florida.

Lund, Einor F.
Chemist, Armour Research Foundation, Chicago 16, Illinois.

Proctor, Charles Darnell
Senior Toxicological Chemist, Unified Toxicology Laboratory, State of Illinois & County of Cook; *Instructor in Pharmacology,* Loyola University Medical School, Chicago. Illinois.

Shanly, John Stuart
Research Chemist, Industrial Tape Corp., New Brunswick, New Jersey.

Silfen, Herman
Chief Chemist, Equitable Paper Bag Company, Inc., Long Island City, N. Y.

Slates, Harry Lovell
Graduate Assistant, The Ohio State University, Department of Chemistry, Columbus 10, Ohio.

Walker, William Comstock
Associate Director, National Printing Ink Research Institute, Chemistry Department, Lehigh University, Bethlehem, Pennsylvania.

ASSOCIATES

Bader, Gordon Henry
Assistant Chemist, Socony Paint Products Div. of Socony Vacuum Oil Company, Long Island City, New York.

Gaynor, Allan J.
Research Assistant, Armour Research Foundation, Chicago 16, Illinois.

Johnson, David Freeman
Graduate Student, Howard University, Washington, D. C.

REINSTATED TO FELLOW MEMBERSHIP

Abbott, George A.
Professor of Chemistry, University of North Dakota, Grand Forks, North Dakota.

RAISED FROM ASSOCIATE TO MEMBER

Holler, Albert C.
Research Fellow in Chemistry University of Minnesota, Minneapolis, Minnesota.

Dr. Raymond E. Kirk moved that the Councilors express their appreciaof the never failing courtesy, dispatch and enthusiasm which Dr. Foster Dee Snell, retiring president, has shown during his term as president of the INSTITUTE. This motion was was accepted with a rising vote of thanks to Dr. Snell.

There being no further business, adjournment was taken.

Conference on Surface Reaction

The Pittsburgh International Conference on Surface Reactions is being held during the week of June 6 at Webster Hall Hotel, Pittsburgh, Pa. Morning programs include panel discussions under the sponsorship of various technical groups. Afternoon programs include visits to laboratories and other points of interest.

Summer Laboratory Clinics

Summer laboratory clinics at Polytechnic Institute of Brooklyn, Brooklyn, N. Y., will include: "Weight and Shape of Macro Molecules in Solution," June 7-11th; "Polymerization Techniques," June 21-25th; "Industrial Applications of X-ray Diffraction," June 28-July 9th; "Advanced X-ray Diffraction," July 12-17th. These clinics will be under the auspices of the Institute of Polymer Research, headed by Dr. Herman F. Mark, F.A.I.C., and the Division of Applied Physics, headed by Dr. Isidor Fankuchen.

ACCL to Meet in Colorado

The American Council of Commercial Laboratories will hold its annual meeting June 18th to 20th, at Colorado Springs, Colorado. The subject of the meeting will be a discussion of the problems involved in testing and outlining the technical phases of international contracts, with reference to the standards and quality of merchandise furnished Europe under the Recovery Program.

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For Your Library

Organic Synthesis

R. L. Shriner, Editor. New York, John Wiley & sons, Inc; London. Chapman & Hall, Ltd. 1947. 121 *pp.* $2.25.

It is extremely difficult to either praise or criticize any one particular volume of this set of invaluable laboratory preparations.

A synthesis which is necessary for one group of individuals will not in many cases, interest another group. The best way to review this volume is to give the list of preparations so that a prospective buyer may see for himself whether this particular volume should be of interest.

β-Alanine, β-Aminopropionitrile and bis-(β-Cyanoethyl)- amine, Benzalacetone Dibromide, Biallyl, α-Bromobenzalacetone, tert. - Butylamine, Carboxymethoxylamine Hemihydrochloride, Decamethylenediamine, Diethylaminoacetonitrile, Dihydroresorcinol, 3, 5-Dimethyl -4- carbethoxy -2-cyclohexen-1-one and 3,5-Dimethyl-2-cyclohexen-1-one, 1,5 - Dimethyl- 2 - pyrrolidone, 2,3-Diphenylindone (2, 3 - Diphenyl -1- indenone), 2, 4-Diphenylpyrrole, Ethyl α-Isopropylacetoacetate, 4-Ethylpyridine, Glyconitrile, 5-Hydroxypentanal, Isatoic Anhydride, 6-Methoxy-8-Nitroquinoline, 1 - Methyl-2-imino- β-naphthothiazoline, N-Methyl-1-napthylcyanamide, 1 - Methyl-1-(1-naphthyl)-2-thiourea, Mucobromic Acid, m-Nitrodimethylaniline, 3- Penten 2-ol, γ-n-Propylbutyrolactone and β-(Tetrahydrofuryl) - propionic Acid, Pseudothiohydantion, Rhodanine, Stearolic Acid, Tetraiodophthalic Anhydride, m-Thiocresol, o-Toluic Acid, p-Toluic Acid, o-Toluidinesulfonic Acid, 1, 3, 5,-Triacetylbenzene.

—John B. Rust, F.A.I.C.

Proceedings of the Conference on Nuclear Chemistry

Held at McMaster University, Hamilton, Canada, May 15-17, 1947 *Sponsored and published by The Chemical Institute of Canada, Ottawa, 2 Vols.* 227 *pp.* 8½"x11".

Most of the material presented therein emanates from the Atomic Energy Project of the National Research Council, Chalk River, Ontario, where they have an Uranium (235)-Heavy Water pile designed and supervised in construction by Dr. J. D. Cockroft, director of the British Atomic Energy Research Establishment.

The purpose of the Proceedings is "to give you chemists in other fields a bird's-eye view of what has been going on, and more important what the future holds. Before the War, there was no group of chemists in Canada experienced in this field. We

are trying to catch up." They have been catching up rapidly with a start from "the largest and most distinguished group of scientists ever assembled for a single investigation in any British country." (*Smyth Report,* Appendix 8, Canadian Information Service Statement, Aug. 13, 1945.) Theirs was the second largest deposit of uranium ore in the world, an extraction plant and a plutonium plant. They have developed their own group of nuclear physicists and chemists, including Steacie, Volkoff and others who have been with the Canadian section on atomic energy since its inception in 1942.

These are some of the factors contributing to make the articles in the *Proceedings* authoritative, informative and, above all, readable and intelligible to chemists at large. The papers and lectures cover a wide range of nuclear chemistry and physics from academic fundamentals to advanced studies made on or with products of the pile:

Scientific Papers

1. The Atomic Energy Project of the National Research Council and its Contribution to Canadian Research.
2. The Fundamentals of Nuclear Energy.
3. Basic Concepts of Radioactivity.
4. Chemical Aspects of Nuclear Chemistry.
5. The Actinide Series of Chemical Elements.
6. The Radioactive Series of Chemical Elements.
7. The Chemistry of Plutonium.
8. Electrochemistry of Some Actinide Elements.
9. Instruments and Techniques.
10. Fission Products.
11. Application of the Mass Spectrometer to Fission Products.
12. Krypton and Xenon Arising from Fission.
13. Technical Uses of Fission Products.
14. Preparation of Radioactive Tracers.
15. Preparation of Stable Tracers.
16. The Uses of Radioactive Tracers in Chemistry.
17. The Uses of Stable Tracers in Chemistry.
18. The Uses of Tracers in Biology.
19. The Synthesis of Organic Compounds Containing Carbon 13 or 14.
20. Radiation Chemistry and Photochemistry.
21. Radiation Chemistry. Remarks on the Effects of Resonance as Illustrated by Benzene.
22. Reactions in Aqueous Solutions.
23. Reactions Caused by Slow Electron Bombardment.
24. The Health Aspects of Radioactive Work.
25. The Design of Laboratories for Radioactive Work.
26. Practical Precautions with Neutron Sources.

27. Some Problems for Study in Nuclear Chemistry.

To do justice in review of any one of these articles would require as much space as is available for review of the entire *Proceedings,* which mark only the beginning of a program designed (1) "to form a nucleus of chemists thoroughly steeped in the fundamentals of radiochemistry, and doing research in this field: (2) to use this knowledge to help the production chemists to produce radioactive isotopes for you.."

—Dr. E. E. Butterfield, F.A.I.C.

The Story of Wool

By William F. Leggett. Foreword by Sylvan I. Stroock. Chemical Publishing Company. 304*pp. with bibliography.* 5" *x* 8" $5.00.

When we regard the common materials they seem to be prosaic. When their historical background is told, the story of mankind itself is visible, because the simple things were its building blocks. So it is with the *Story of Wool.* Between the Old and New Stone Ages, man domesticated sheep and goats for food. At first, felted wool was used for clothing and tents, followed by woven fabric. As far back as the Neolithic period, the Swiss Lake Dwellers wove wool into cloth by using primitive tools. Thus began individual industry and commerce.

This book is divided into thirty-six chapters, covering such subjects as, "Man Learns About Wool," "Sheep and Their Ancestors," "The Merino Sheep," "Alteration of Fleece," "Wool and Its Allies," "Wool and Worsted," "Felt, an Ancient Fabric," and chapters on wool in Egypt and India, Mesopotamia, Greece, Rome, Medieval Italy, Spain, France, Flanders, England, Ireland and Scotland, America, Peru, Australia. The Cloth Guilds of Europe and England are discussed, as well as the political complications which wool manufacture brought to the world. The fibers, cashmere, mohair, camel, llama, guanaco, vicuna, hybrid cameloid, etc., are treated in turn. The origin of names of woolen fabrics is given.

The story is non-technical in nature but filled with well-chosen information invaluable to all who are interested in textiles. It is also pleasurable and quotable reading for those who like to know about the past. The author is one of the few writers in the science field who has a definite and charming literary style, and he is thoroughly informed in literature and history in addition to his own specialty of textiles.

—V. F. K.

Books Announced

"Modern Rubber Chemistry," by Dr. Harry Barron. 502 pages, 5¾ x 8¾, illus. $7.50, D. Van Nostrand Company, Inc., 250 Fourth Avenue, New York 3, New York.

"The Chemical Constitution of Natural Fats" (second edition), by T. P. Hilditch, $9, John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y.

"Trade-Mark Law and Practice, Lanham Act Ed." By Leon H. Amdur. $15.00 Clark Boardman Company, Ltd., 11 Park Place, New York 7, N. Y.

"Proteins and Amino Acids in Nutrition," by Melville Sahyun, F.A.I.C., and 17 contributors. 582 pp. $7.50. Reinhold Publishing Corporation, 330 West 42nd Street, New York, N. Y.

"The Genius of Industrial Research." By D. H. Killeffer, 270 pp. $4.50. Reinhold Publishing Corporation, 330 W. 42nd Street, New York 18, N. Y.

"Industrial Weighing." By Douglas M. Considine. 560 pp. Illus. $10.00. Reinhold Publishing Corporation, 330 W. 42nd Street, New York 18, N. Y.

The Europa Publications Ltd., 39 Bedford Square, London, W.C.I., England, announces that the "World of Learning 1948" is now ready for publication. It lists colleges, universities, learned societies, libraries, museums, and their personnel in the countries of the world. The pre-publication price is £2 10s.

"Decimal Classification and Relative Index," edition 14, revised and enlarged, 1927 pp. $15 plus postage. Abridged edition 6, $4, postpaid. Published by Forest Press, Inc., Lake Placid Club, Essex County, New York.

"Cottonseed and Cottonseed Products.. Their Chemistry and Chemical technology." Edited by Alton E. Bailey. 960 pp. 6" x 9" $17.50. Interscience Publishers, Inc., 215 Fourth Avenue, New York 3, N. Y.

"Ceramic Whitewares," by Rexford Newcomb, Jr., 313 pp. Illus., $5. Pitman Publishing Corporation, 2 West 45th Street, New York 19, New York.

"Scientific and Technical Abbreviations, Signs and Symbols," by Drs. O. T. Zimmerman and Irvin Lavine. 476 pages, $7.50. Published by Industrial Research Service, Masonic Building, Dover, New Hampshire.

D P's Request Scientific Books

Professor Dr. Leonid Enari, Leader of Education Section, DP Camp 615, (14a) Geislingen (Steige), Wurttemberg, USA Zone of Germany, requests donations of American scientific literature, particularly in industrial chemistry. Especially desired is a copy of "Poucher, Perfumes, Cosmetics and Soaps I and II."

Opportunities

Civil Service Examinations, Federal Agencies.

Examinations (unassembled) are announced by the Civil Service Commission for chemist positions in Federal agencies, Washington, D. C., and vicinity. Salaries range from $7,102 to $9,975 a year. The maximum age limit, 62 years, is waived for persons entitled to veteran preference. Information and application forms may be secured from first and second class post offices, Civil Service Regional offices or from the United States Civil Service Commission, Washington 25, D. C. Request examining circular EC-19, form 57, card form 5001-ABC, and if veteran, form 14.

Civil Service Examination U.S. Public Health Service

The U.S. Civil Service Commission announces examinations for filling positions in the Communicable Disease Center of the U. S. Public Health Service. Positions to be filled are Bacteriologist (Medical), Biologist, Chemist, Entomologist, Mycologist, Parasitologist, and Serologist. The salaries range from $3,397 to $5,905 a year. Information and application forms may be obtained from first and second-class post offices, from Civil Service regional offices, or from Unites States Civil Service Commission, Washington 25, D. C.

Organic Chemist

Organic Chemist: 10 years' experience in research development, pilot plant, organic syntheses, vitamins, surface-active agents, literature surveys, fine chemicals; presently in proteins and amino acids. Three years as junior executive in research division research: plus consultant to management. Member leading scientific societies. Desires position with opportunity in research, development, management. Please reply to Box 60, THE CHEMIST.

Chemist Technologist

F.A.I.C. Experienced in drying oil treatments, resins, varnishes, paints, enamels, driers and their raw materials. Research, plant problems, supervision and equipment and plant design. Knowledge of organic chemistry of coating materials. Full time or part time connection sought in South or near South. Please reply to Box No. 62, THE CHEMIST.

Chemist-Executive

Research Chemist - Executive. Twenty years experience in direction, coordination and pursuit of research and developments, through production, specifications and controls. Rubber Compounding. Latex Processing. Synthetic Organic Chemicals. Excellent collegiate training, industrial and administrative background. Recent Technical Director. Available immediately. Location immaterial. Please reply to Box 64, THE CHEMIST.

Condensates

Ed. F. Degering, F.A.I.C.

"Phenomenal wartime demand and the resulting postwar acceptance of aluminum have boosted it to a position as the second-ranking metal of peacetime industry, in terms of volume produced. Iron (steel) alone is produced in large volume today."

—George R. Gibbons
Senior vice-president of the
Aluminum Company of America

We cannot all do everything. One must dig the dirt for the foundation; another must place the foundation where it is to go; and yet another must plant that which is to rest upon it; while scores contribute to the structure which is raised. It is a mistake to say, when we see a building or business or a life: "One man did that," for no man ever did very much in this world alone.

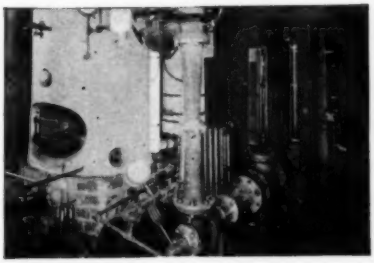
—Bulletin
Greenville, S. C.

By adding about three drops of a ten per cent solution of Aerosol to a bottle of India ink, it can be used to write on glass with a quill-type of pen.

—Kenneth N. Campbell

What's Behind a CR Evacter?

The production of Evactors is no routine operation at the Croll-Reynolds plant. Although CR engineers have over thirty years of industrial vacuum experience to guide them, the Croll-Reynolds testing and development department is one of the important units of the company. Development work is constantly under way to improve the efficiency of Croll-Reynolds Evactors wherever it is possible. It is this never-ending research and development which gives CR Evactors their exceptional efficiency.



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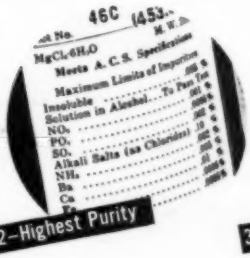

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